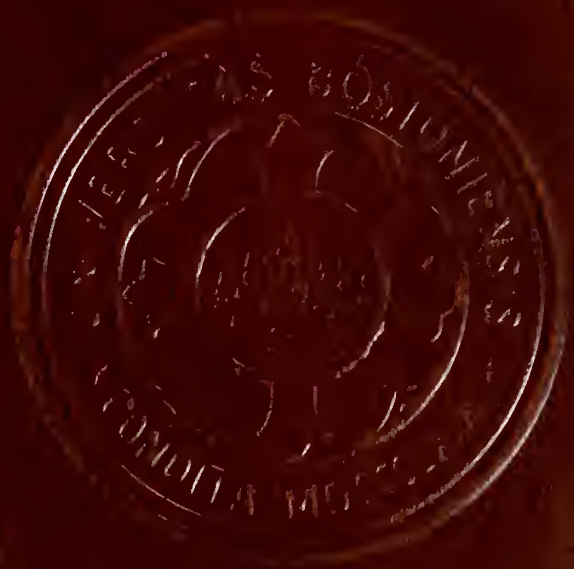

BOSTON UNIVERSITY

SCHOOL OF EDUCATION

Thesis

# THE PREDICTION OF SIXTH GRADE READING ACHIEVEMENT

Submitted by

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# CHAPTER I

## STATEMENT OF PROBLEM

Each year during the months of April, May, and June there are many questions relative to the promotion of children at all grade levels. In grades one and two, reading achievement is one of the most important factors in the promotion of children. In grades above the second, reading is no longer the one subject upon which promotion is based, but reading does limit the success that individual children can accomplish in other school subjects.

In June 1944 more than 50% of the pupils in the sixth grade of one elementary school in a residential town in greater Boston were reading below grade level. This fact was disturbing to the writer because the median I. Q. in the town was reported to be in the vicinity of 112, which is above the average. Therefore it seemed only reasonable to expect that a much larger proportion of the class should read at or above grade level at the end of grade six.

There were many possible reasons for the poor reading achievement. The following were considered:

1. The teaching in grade six might have been inferior.
2. The necessary time might not have been alloted for reading in grade six.

3. The reading system used might have been responsible.
4. The reading tests used may have been a poor measure of the achievement of the class.
5. An epidemic of diseases and poor attendance in grade six might have affected the reading program.
6. A weakness in the skills of reading might have existed throughout the elementary grades.

In following up the above possibilities it was found that the test results at the end of the previous year showed that the children were reading in about the same relative position in both grade five and six.

The tests used in grade six were the advanced battery of the Iowa Standard Achievement in which the reading material was of a factual nature rather than fictional as had been the case in the Iowa Standard Achievement test used in grades 3, 4, and 5. Although this change is important the fact that the reading disability was apparent in grade five would seem to indicate that the test used was not the reason for poor achievement in sixth grade reading.

The weakness in the skills of reading which was present could not be accounted for exactly because there were so many uncontrollable factors such as, differences in teaching, attendance in school, physical and emotional handicaps, different standards of promotion and differences in home background, all of which certainly influence

reading achievement. As this was the situation it seemed that there would be little use in considering further the teaching in grade six, the time allotted, the present reading system and continued absence as causes for the poor reading achievement in the sixth grade. It did seem, however, that there were some established factors such as the intelligence quotient and standard tests which might be analyzed to determine the relationships of reading achievement in the elementary school.

In the files of the Guidance Department, which were available for use in this study, there were standard intelligence and achievement tests for all children in the elementary schools during the period from 1939 through and including 1944. Gates Reading Tests had been given to grades one and two. In grade three there had been a change to the Iowa Reading Tests which were given in grades 3, 4, 5 & 6.

The results of the Gates Reading Test had been tabulated as word recognition and word meaning. These two scores had been averaged and termed Reading Age.

The results of the Iowa Reading test given in grades three through six, were tabulated as reading comprehension, and reading vocabulary in terms of grade level. These two scores were not averaged as reading grade.

The Stanford-Binet Intelligence Tests had been given by the same examiner to the children during the kindergarten year.

The material available to use seemed to offer a challenge to compare the relative position of reading achievement at the end of grade one with the relative position of reading achievement at the end of grade six. For it would seem that a weakness in the skills and techniques of reading might well start with a poor achievement in reading in grade one. If this should be the case, first grade achievement, as measured by standard tests would be a very important factor in considering promotion from grade one. Furthermore, the standard test results at the end of grade one, might be used to predict the achievement of reading at the end of grade six.

The influence of the level of the intelligence quotient in relation to reading achievement and its value in prognosis for sixth grade is also a challenge by the material which is available for use in this study.

The Problem

In considering the true factors mentioned above, namely, the relative position of reading achievement in grades one and six and the influence of the Intelligence Quotient in reading achievement the following problem was developed.

1. What does relative rank in reading achievement as shown by standard test scores at the end of grade one, predict as to reading placement in grade six?

2. Is the Intelligence Quotient a more reliable prediction for relative placement?

3. Does the consideration of both first grade achievement as shown by standard test scores, and the Intelligence Quotient increase the accuracy of prediction?

Although the writer became interested in the problem through the reading situation in one school, it seemed wise to use the test results in all elementary schools in town.

# CHAPTER II

## RELATED RESEARCH

No topic in educational literature has a wider popular appeal than prognosis. Every man, woman and child is at one time or another absorbingly interested in his future and the promise of those with whom he is associated. Parents make frequent predidions about their children. Many times these forecasts are based upon wishfull thinking. Children at play predict which of their number will lead them in winning a game. Elementary school teachers predict which of their pupils will do satisfactory work in the next grade. In fact predictions are made in every area of living.

The literature related to prognosis in the elementary school is vast and varied. Studies of genetic development and growth of the child, of maturation levels, of the constancy of the I. Q. and of related problems are more or less related with prognosis.

In this study, which is dealing with prognosis in the field of reading, the related research may be classified under the following headings:

1. Factors influencing the accuracy of prediction.
2. The value of Intelligence Tests in prognosis.
3. The prediction of first grade achievement.
4. The use of prognosis in schools beyond the elementary school.

Factors Influencing the Accuracy of Prognosis

Stoddard [1] in 1925 made the following statement:

Prediction which begins with "I think this will happen" and a semester or year later ends with "I told you so" is worth nothing. It has merely satisfied an intellectual curiosity. If no change has been made in the machinery for taking care of differently equiped children, if the instructor has paid no attention to these differences, if pupils are all forced to go through the same program at the same rate it is doubtful that the widespread use of prognostic tests can be justified.

In 1930 Stoddard [2] stated that good ends would be served by tests which will indicate what performance the

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[1] George D. Stoddard, Iowa Placement Examination, University of Iowa. Studies in Education. Vol. III No. 2 August 1925

[2] George D. Stoddard: "The Use of Quantitative Measurement in Inducting the Student into Institution of Higher Learning and in Predicting his Academic Success." Quantitative Measurement in Institutions of Higher Learning. Chicago, University of Chicago Press 1930 pp.IX 253 p. 88-120

student will show, assuming a constant educational environment. If the coefficients of correlation are then lowered (as is the case in most advanced colleges) by the simple expedient of not working for determinism, this fact should be accepted by all concerned as a mark of progress.

Ross and Hooks [3] found that guidance in the secondary school is dependent upon the ability to predict achievement. The basis of prediction must satisfy the criteria of validity, reliability, and usability. The data most valuable to them was a combination of the record of the elementary school which would include age, grade progress, attendance, and marks. The grade school records seemed to be the most reliable and also the most available.

Emiston [4] correlated raw Intelligence scores with achievement for 800 Pupils. The coefficient of correlation varied from 21 to 71. Further he concluded that:

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[3] C. C. Ross and N. J. Hooks. "How Shall We Predict High School Achievement." Journal of Educational Research: 22, 184, 96

[4] R. W. Emiston: "Methods of Improving Prediction." School and Society, 33: 411-14 Mr. '31

1. Objective tests are a definite aid in furnishing data for more appropriate school marks. 2. Even with objective tests, better supervision with more definite goals improves evaluation of pupils' work. 3. Pupil groups of low ability require more thorough testing to obtain more reliable term marks. 4. Teaching for tests should be condemned as the information learned is not lasting. 5. More thorough methods of eaching that go back to fundamental causes more than repay the time invested. 6. Some teachers are very unfair in reporting marks. 7. School marks must be very carefully determined if they are of value in prediction.

In 1932 St. John [5] carried on an experiment with children in grades 1 through 6 and concluded that November test scores were more predictive of achievement over one period than were the tests given in June. He feels that there is need for further long time study in this area.

Feder [6] states that, ideally, measurement of growth should be continuous throughout the entire educational career of each person and comparable from school to school. Entrance examinations serve in lieu of this. The predictive

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[5] C. W. St. John: "Some Evidences of Effects of the Pupils Classroom Adjustment upon his Achievement Test Performance". Journal of Educational Psychology: 23: 489-404 '32

[6] D. D. Feder: "Evaluation of Some Problems in the Prediction of Achievement At the College Level". Journal of Educational Psychology, 26: 597-603 N. '35

value of entrance examinations diminishes after the first semester and markedly after the first year. He further states that, 1. The function of prediction is to facilitate guidance and not to achieve rigid determinism. 2. At the college level the predictive coefficient should logically be expected to decrease under improved instruction and guidance. 3. The best basis for prediction is an objective cumulative record of achievement. The next best is a pre-instructional test. 4. Prognostic subject matter tests are better for prediction than a general ability test.

The factors that influence the accuracy of prognosis that have been reported in the preceeding paragraphs seem to indicate that school marks because of their inconsistancy and unreliability are of little value for prediction. Standard tests, on the other hand, are more controlled because of their construction and study in the establishment of norms, and when given under ideal conditions should be a good basis for prognosis. It is further indicated that standard tests given in November are more reliable for prediction than tests given in June.

A real challenge is given to teachers in that improved instruction and guidance will decrease the coefficient of correlation between prediction and achievement.

The Value of Intelligence Tests in Prognosis

Ruth Strang [7] stated that: 1. The correlation coefficients between certain total reading scores and intelligence lies between .50 and .70 when group tests are used. 2. The more intelligent children are growing toward higher maxima and begin and end their reading development at earlier ages than do the lower intelligent groups. On the other hand, rates of growth are nearly equal and the times required for development are nearly the same. In other words, the reading curve of a boy with an average I. Q. of 111 is higher than, but runs parallel to the reading curve of a boy with an average I. Q. of 97. Thus the I. Q. seems to be a potent factor in determining reading performance at a given time and also the maxima toward which a child is growing.

The implication for guidance and prognosis from this study are: 1. Verbal I. Q. tests may give misleading estimate of mental ability of individuals who are seriously retarded in reading and language ability. 2. Because group intelligence tests and reading comprehension have so much in common, a reading test might be used in educational guidance especially in talking with

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[7] Ruth Strang: "Relationship Between Certain Aspects of Intelligence and Certain Aspects of Reading". Educational and Psychological Measurement. Vol. 13 No. 4 355-359, 1944

parents. A parent might understand poor reading ability when he wouldn't understand a discussion of I. Q.

Millard [8] stated that the reading achievement of children of every age from 7 to 11 in the upper intelligence group is superior to those of the lower intelligence group.

Mitchell [9] found that children who score in the lower fifth of the class as measured by intelligence tests at the beginning of high school have 21 times as many chances to drop out as do those in the upper fifth.

Krueger [10] in 1939 found that the grade I. Q. correlation shows a closer correspondence than that of I. Q. and individual classes. That is, a pupil may fall below in some subject and above in others, but for all grades he can be expected to average near his ability.

True [11] found that the coefficient of correlation varied from 10 to 85 with an average of 50 in his study of the relation of reading and intelligence. He concluded

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[8] Cecil V. Millard: "The Nature and Character of Pre-Adolescent Growth in Reading". Child Development XI '40 71-105

[9] C. Mitchell: "Prognostic Value of Intelligence Tests". Journal of Educational Research 28: 577-81

[10] R. L. Krueger: "Grades and the I. Q". School and Society 50: 60-4 '39

[11] True: "Relation of Intelligence to General Progress in Reading". Encyclopedia of Educational Research P. 9

further that the correlation was the highest in grades 5 and 6. The correlations were higher for group intelligence tests than for individual Benet.

Main and Horn [12] in working with children in the 90-109 I. Q. group found that only 43% of the normal children completed the elementary grades without repeating. The variable most closely associated with non promotion appears to be I. Q. as the numbers of failures increased as the intelligence range decreased from 103 to 93.

The use of the Intelligence Quotient in prognosis is a recognized fact. Among children of low intelligence it determines the placement, approach to teaching and limits directly the kinds of skills any individual is expected to learn. In this study the typical child is not considered. The influence of intelligence in children with an intelligence quotient of 80 and above seems to be the area of interest.

The research in this area reveals that the correlation between intelligence and achievement ranges from .50 to .70. In all studies reported showing the relationship between reading and intelligence, group intelligence tests showed a better correlation than individual tests did. The achievement of the children in the upper intelligence group

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12 Main, L. and E. A. Horn: "The Rate of School Progress of Children in the 90-109 I. Q. Group". Journal of Educational Research 32: 561-9 Ap. '39

was superior to that in other groups while in the group with an intelligence quotient of from 103-90 failures increased as the I. Q. decreased.

The value of the I. Q. as a factor in prognosis is well established by the research reported.

The Prediction of First Grade Achievement

Morphet and Washburn[13] compared the progress of first grade children of different C. A. and M. A. levels in vocabulary master, oral reading, and general reading progress and concluded that: 1. an M. A. of 6.5 is the optimum time at which to begin to teach reading. 2. Some pupils between the M. A. or 6.0 and 6.5 made satisfactory progress.

The conclusions of Morphet and Washburn were similar to those of Raybold[14]. He concluded that pupils with a mental age of 76 months made more rapid progress in learning to read than those who were less mature.

Dean[15] experimented with two readiness tests and M. A. and found that: 1. Only a slightly increased correlation was obtained when either of the two readiness

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13 Morphet and Washburn: "When Should Children Begin to Read?" Elementary School Journal 31, 496-503 '31

14 Raybold: Elementary School Journal 31: pp. 531-46

15 C. P. Dean: "Predicting First Grade Achievement". Elementary School Journal 39, pp 600-16 April 1939

tests were combined with M. A. 2. When all three were combined the result was but little greater than the correlation between M. A. and reading achievement.
3. The relation of M. A. to reading achievement is .62. The optimum M. A. required to do average work in first grade reading was found to be 6 years and 6 month.
4. Readiness tests showed a correlation of .59 and .41 which were lower than for M. A. A study by West[16] with 731 college students concluded that seldom in Educational Prognosis does a third factor appreciably increase prognosis. This study agrees in part with the findings of Dean.

Gates[17] found that tests which measure reading progress 2 or 3 weeks after entering school, give on the whole, satisfactory predictions of reading ability at mid year. He further found that the predictive value of a particular test varies with the teaching method. The better a teacher adjusts her work to a child's special abilities, as revealed by the readiness tests, the better the prediction made by the test.

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16 C. W. West: "Practical Statistics of Prediction". Journal of Experimental Education. 3: 198-203 Mar. '35

17 A. I. Gates: "Experimental Evaluation of Reading Readiness Tests". Elementary School Journal 39: 497-508 Mr. '39

Teegarden[18] found in general that pupils who had kindergarten training made more rapid progress in reading than did children without such training.

The importance of a child's readiness to begin reading has been well established in the research so far reported. It seems to be an accepted fact that the optimum mental age for beginning reading is between six and six and one half years. Readiness tests are not as reliable for predicting success as mental age is. When the two are combined the correlation is a little higher than that for mental age alone, but the increase is so small the value in combining them is doubtful. The real value of readiness tests seems to be that they reveal strengths and weaknesses of the child which the skilled teacher can use to guide the child successfully throughout his first grade year.

Children who attended kindergarten seem to make more rapid progress in reading than those who have the same mental age, but have not had the advantage of the rich experiences of a year in the kindergarten.

To summarize, a child with the mental age of 6 years and 6 months, who has completed kindergarten should be able to do first grade work successfully.

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18 Teegarden: "Tests for the Tendency for Reversals in Reading". Journal of Educational Research '28- 81-97 Oct. 1933.

The Use of Prognosis Beyond the Elementary School

Nemzek and De Heus[19] found that achievement scores alone were almost as effective for prediction as was the combination of mechanical aptitude and intelligence tests in prognosis in academic subjects. The correlations were negligible when made between industrial art marks and C. A. or mechanical aptitude test scores.

Adams[20] in a study to predict high school and college records from elementary school test data found that: 1. Average high school graduates and college freshmen tend to come from the chronological younger half of the elementary school. This group would be the older M. A. half and higher in I. Q. 2. I. Q. during the later elementary school period seemed to predict best the college freshman aptitude test results. 3. The relative freshman work was best foretold by the high school achievement record. 4. The combined relative standing of students in grade six with respect to I. Q. and Standard Achievement tests may be a superior prediction for relative achievement in high school. 5. Little justification would seem to be found for extensive predictions of subsequent academic histories of students from the products of a minimum testing program during later

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[19] C. L. Nemzek and J. L. De Heus: "Prediction of Academic and Non Academic marks in Junior High School". School and Society 50: 670-2

[20] F. J. Adams: "Predicting High School and College records from Elementary Test Data". Journal of Educational Psychology 29: 56-66 Ja. '38

elementary school grades.

Adams[21] continued the above study to find the relationship between college degrees and the elementary school I. Q. He concluded that: 1. Elementary school students later entering college tend to be of higher I. Q. College freshmen who obtain a B. S. average higher than students who drop out. 2. College students still working on their first degrees tend to be of lower I. Q. 3. About 4/5 of the college freshmen and nearly 9/10 of the students obtaining B. S. degrees rank above the average I. Q. of their classmates in the later elementary school grades. 4. The I. Q. level of 101 was more frequent among college freshmen while the I. Q. of 119 appears to be proportionately more frequent among college graduates than among college freshmen. 5. Within the group where honors can be granted, pupils may possess higher I. Q. on the average than their classmates with no degree.

Research in the area beyond the elementary school has little significance to this study. It does show however, that elementary school achievement test records are most valuable in guidance through high school and even into college.

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21 F. J. Adams: "College Degrees and Elementary School I. Q.". Journal of Educational Psychology. 31: 360-8 My '40

The intelligence quotients taken in grades five and six are a very important factor in guidance of youth in high school courses because it seems that a child with an intelligence quotient below 110 has little chance to achieve college graduation.

# CHAPTER III

# THE STUDY

## Restatement of Problem

1. What does relative rank in reading achievement as shown in grade one predict as to relative rank in grade six?

2. Is the Intelligence Quotient a more reliable prediction for relative placement?

3. Does the consideration of both first grade reading achievement and Intelligence Quotient increase the accuracy of prediction?

## Data Available to Use

In the files of the Guidance Department, which were available for use in this study, there were standard Intelligent and Achievement test results for all children in the Elementary Schools, for the period from 1939 through and including 1944. Gates Reading Tests had been given in grades one and two. In grade three it had been necessary to change from the Gates Test to the Iowa Reading Tests which were given in grades three, four, five and six.

There were three hundred and seventy-three children in the first grades in the six Elementary Schools in 1939.

Two hundred and five or Fifty-six percent of these three hundred and seventy-three children remained together as a constant group through the six grades. There were many additions to the class, but as a constant group was desired, these were not used.

The two hundred and five children were used for this study as they had been schooled by the same Philosophy of Education and taught the same Reading System. The only variable would be in the teaching staff in the eleven grades of the six Elementary Schools.

Stanford-Benet Intelligence Tests had been administered by a single examiner to all the pupils in this group when they were in the Kindergarten. As these tests were given by the same examiner they should be reliable, at least, for comparison.

In this study the relative achievement in reading at the first grade level is being compared with the achievement in sixth grade reading. Therefore the test results at the end of grade one and grade six were chosen as the most valuable data.

The Intelligence Quotient for each child was valuable as a possible valid measure of predicting achievement.

Description of Data

The test scores for the Gates Reading Tests, which were used in grade one, had been recorded in terms of Reading Age. The scores for the Iowa Reading Tests which

were used in grade six were recorded in terms of Reading Grade. In order to express the results in similar terms both were converted to percentiles. The grade six scores were given for achievement in reading vocabulary and for reading comprehension.

CHART I

THE RELATIONSHIP BETWEEN THE DECILE POSITION OF READING AGE IN GRADE I AND THE DECILE POSITION OF READING COMPREHENSION IN GRADE SIX FOR 205 CHILDREN

| Grade 6 Deciles | 6 | 8 | 26 | 22 | 20 | 29 | 9 | 34 | 24 | 27 | | 205 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | | | 2 | 3 | 2 | 1 | 1 | 2 | 3 | 9 | 23 | |
| 9 | | | 3 | 3 | 1 | 4 | 1 | 2 | 5 | 3 | 22 | |
| 8 | | 1 | 3 | 2 | 2 | 2 | 1 | 4 | 2 | 3 | 20 | |
| 7 | | 2 | 2 | 2 | 2 | 4 | 1 | 3 | 4 | 1 | 21 | |
| 6 | 1 | | 3 | 2 | 1 | 3 | 1 | 4 | 2 | 3 | 20 | |
| 5 | 4 | | 3 | 3 | 3 | 2 | | 3 | 2 | 4 | 24 | |
| 4 | | 1 | | 1 | 3 | 1 | | 2 | 1 | 2 | 11 | |
| 3 | | 3 | 4 | | 1 | 4 | 1 | 6 | 1 | 1 | 21 | |
| 2 | | 1 | 1 | 4 | 1 | 4 | 3 | 4 | 4 | 1 | 23 | |
| 1 | 1 | | 5 | 2 | 4 | 4 | | 4 | | | 20 | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Grade 1 Deciles | |

Chart I shows that a first grade decile position of Reading Age gives very poor indication of sixth grade achievement in Reading Comprehension.

There were six children in the first decile in grade one. One was in the first decile, four centered in the fourth decile and one was in the sixth decile in grade six. Eight children fell in the second decile in grade one. These fell into two groups in grade six. One well above the median and one well below. There were three children in the

third and one child in each of the second and fourth deciles. The other group has two children in the seventh and one child in the eighth deciles. Twenty-six children were in the third decile in grade one. They ranged from five children in the first decile to two children in the tenth decile in grade six.

If the first three deciles were combined there would be forty children or twenty percent of the class. Seventeen of this group made scores above the median in Reading Comprehension at the sixth grade level. Evidently a child who scored low in Reading score in grade one has a fifty-fifty chance of scoring above the median in Reading comprehension in grade six.

The entire chart shows that one hundred and six children out of the two hundred and five fell above the median for grade six.

Chart I shows that there is little basis for prediction of achievement in sixth grade Reading comprehension through the use of the decile position of Reading Age in grade one.

Intelligence Quotient As A Basis Of Prediction

Is the Intelligence Quotient a more reliable basis for prediction of relative placement in Reading Comprehension in grade six?

Chart I was divided as follows according to Intelligence Quotient levels. Chart II shows the relative

placement of children with an I. Q. one hundred ten and above. Chart III shows the relative placement of the children with an I. Q. below one hundred and ten.

CHART II

THE RELATIONSHIP BETWEEN THE DECILE POSITION OF READING AGE IN GRADE ONE AND THE DECILE POSITION OF READING COMPREHENSION IN GRADE SIX FOR 143 CHILDREN WITH AN INTELLIGENCE QUOTIENT OF ONE HUNDRED AND TEN AND ABOVE.

Grade 6 Deciles

| | 4 | 4 | 16 | 17 | 14 | 18 | 8 | 22 | 18 | 22 | | 143 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | | | 2 | 2 | 2 | 1 | 1 | | 3 | 9 | 20 | |
| 9 | | | 1 | 2 | 1 | 3 | 1 | 2 | 5 | 3 | 18 | |
| 8 | | 1 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 13 | |
| 7 | | | | 1 | | 3 | 2 | 2 | 3 | 1 | 12 | |
| 6 | 1 | | 3 | 2 | 1 | 1 | 1 | 4 | 1 | 2 | 16 | |
| 5 | 3 | | 1 | 3 | 2 | 2 | | 2 | 1 | 3 | 17 | |
| 4 | | | | 1 | 3 | 2 | | 2 | 2 | 1 | 11 | |
| 3 | | 2 | 2 | 1 | 1 | 3 | | 2 | 1 | 1 | 13 | |
| 2 | | 1 | 1 | 2 | | 1 | 2 | 5 | 1 | | 13 | |
| 1 | | | 4 | 1 | 3 | 1 | | 1 | | | 10 | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Gr. 1 Deciles | |

Chart II shows the relationship between the decile position of reading age in grade one and the decile position of reading grade in grade six for children with an Intelligence Quotient one hundred and ten and above.

Four children were in the first decile in grade one. In grade six three children were in the fifth and one child was in the sixth deciles. Four children were in the second decile in grade one. In grade six one child was in the second decile, two children were in the third decile and one child was in the eighth decile. Sixteen children were in the third decile in grade one. In grade six they ranged from four in decile one to two in decile ten. The median of this group was between the fourth and fifth deciles.

The chart in its entirety shows that seventy-nine out of one hundred and forty-three children fell above the median for the sixth grade. It is significant to note that five or twenty-three percent of the children in the tenth decile in grade one are below the median in grade six. Seventeen or seventy-seven percent of the children who were in the tenth decile in grade one remained above the median in grade six. However, nine or forty percent of the children in the tenth decile in grade one remained in the tenth decile in grade six.

CHART III

THE RELATIONSHIP BETWEEN THE DECILE POSITION OF READING AGE IN GRADE ONE AND READING COMPREHENSION IN GRADE SIX FOR 59 CHILDREN WITH AN INTELLIGENCE QUOTIENT BELOW ONE HUNDRED AND TEN.

Grade 6 Deciles

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | 5 | 8 | 7 | 4 | 10 | 2 | 11 | 5 | 4 | | 59 |
| 10 | | | | | | | | 2 | | | 2 | |
| 9 | | | | 2 | | | | | 1 | | 3 | |
| 8 | | | 1 | 1 | 1 | | | 2 | 1 | | 6 | |
| 7 | | 2 | 2 | 1 | 1 | 1 | | 1 | 1 | | 9 | |
| 6 | | 1 | | | | 2 | | | 1 | 1 | 5 | |
| 5 | 1 | | 2 | | | | | 1 | 1 | 1 | 6 | |
| 4 | | 1 | | | | | | 2 | | 1 | 4 | |
| 3 | | 1 | 2 | | | 1 | 1 | | | 1 | 6 | |
| 2 | | | 1 | 1 | 1 | 1 | 1 | | 1 | | 6 | |
| 1 | 1 | | | 2 | 1 | 5 | | 3 | | | 12 | |

Gr. 1 Deciles

Chart III shows the decile position for Reading Age in grade one and the decile position for Reading Comprehension in grade six for the children with an Intelligence Quotient below one hundred and ten.

Two children fell in the first decile in grade one. One child remained in the first decile, the other child fell in decile five in grade six. Five children fell in decile two in grade one. In grade six one child fell in

each of the deciles, three, four and five. Two children were in the seventh decile. Eight children fell in decile three in grade one. In grade six one child fell in each of the second and eighth deciles. Two children were in decile three and five children were in decile seven.

If the lower three deciles were combined there would be fifteen or approximately twenty-five percent of the group. Six of these children made scores above the median in grade six. Evidently a child with an Intelligence Quotient of less than one hundred and ten who scores in the lower three deciles in first grade reading, has two chances in five of being above the median in Reading Comprehension in grade six.

The data presented in Charts II and III show that:

1. Forty-four percent of the group with an Intelligence Quotient below one hundred and ten fell above the median in grade six.

2. Fifty-five percent of the group with an Intelligence Quotient of one hundred and ten or above fell above the median in grade six.

3. Seventy-seven percent of the children in the tenth decile in the upper intelligence group remained above the median of the class in grade six. Only one child or twenty-five percent of the children in the lower Intelligence Quotient that were in decile ten in grade one was able to remain above the median in grade six.

Further Consideration Of Data

These three charts so far considered have shown that there is some basis for prediction of achievement in Reading Comprehension in grade six by a careful consideration of the decile position of Reading Age in grade one, and the Intelligence Quotient of the child. As the chance of prediction was not as high as had been hoped for it seemed wise to re-examine the data involved.

In grade six the scores so far used were for Reading Comprehension, evaluated separately from Reading Vocabulary. Whereas in grade one the Reading Age scores had included word recognition as such, it seemed more consistent to incorporate vocabulary scores in both years.

The test results available in both 1939 and 1944, tabulated scores for both Reading Comprehension and Reading Vocabulary separately. The data used in the study so far, used these combined scores in grade one but not in grade six. Therefore, the two scores in grade six were averaged. The result, which we will call Reading grade, was believed to be a more comparable measure to be used with grade one scores of Reading Age.

A new distribution was necessary for the derived Reading Grade in order to obtain the percentile position of each Reading Grade score.

CHART IV

THE RELATIONSHIP BETWEEN THE DECILE POSITION OF READING AGE IN GRADE ONE AND THE DECILE POSITION OF READING GRADE IN GRADE SIX FOR 203 CHILDREN

Grade 6 Deciles

| | 6 | 13 | 20 | 26 | 18 | 26 | 23 | 32 | 16 | 23 | | 203 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | | | | 4 | 2 | 2 | 1 | 2 | 3 | 7 | 21 | |
| 9 | | 4 | 1 | 5 | | 1 | 1 | 2 | 3 | 3 | 20 | |
| 8 | 1 | | 1 | 2 | | 4 | 4 | 7 | 1 | 4 | 24 | |
| 7 | | | 1 | 1 | 2 | 4 | 4 | 3 | 3 | | 18 | |
| 6 | 1 | 1 | 2 | 2 | 1 | 5 | | 5 | 2 | 4 | 23 | |
| 5 | 2 | 2 | 4 | 5 | 3 | 3 | 3 | 2 | 1 | 3 | 28 | |
| 4 | 1 | 2 | 3 | | 1 | 3 | 2 | 2 | 1 | | 15 | |
| 3 | | 1 | 1 | 2 | 5 | 1 | 4 | 2 | 1 | 2 | 19 | |
| 2 | | 1 | 4 | 2 | 1 | 1 | 3 | 2 | 1 | | 15 | |
| 1 | 1 | 2 | 3 | 3 | 3 | 2 | 1 | 5 | | | 20 | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Gr. 1 Deciles | |

Chart IV shows the relationship between the decile position of Reading Age in grade one and the decile position of Reading Grade in grade six.

There were six children in the first decile in grade one. In grade six, one child was in each of the first and fourth deciles, two children were in the fifth, and one child was in each of the sixth and eighth deciles. Thirteen fell in the second decile in grade one. In grade six they ranged from

two children in the first to four children in the ninth decile. Five of the children or thirty-eight percent were above the median in grade six. Twenty children were in the third decile in grade one. In grade six they ranged from one child in the first decile to one child in the ninth decile. Five children or twenty-five percent were above the median of the class.

In grade one, eighty-three of the two hundred and seven children were above the median. Ninety-seven children were below this point in grade six.

Fifty-two children, or sixty-two percent of the children below the median in grade one remained below this point in grade six.

Eighty-five or seventy percent of the children who were above the median in grade one remained above it in grade six.

Chart IV does establish a positive relationship between the decile position of Reading Age in grade one and the decile postion of Reading Grade in grade six.

Influence Of Intelligence Quotient

Does the level of the Intelligence Quotient influence the prediction of the relationship between the decile postion of Reading Age in grade one and the decile position of Reading Grade in grade six?

Two decile charts were made; one to show the relationship between the decile position of Reading Age in grade one and the decile postion of Reading Grade in

grade six for children with an Intelligence Quotient of one hundred and ten and above; the other chart to show the same relationship for children with an Intelligence Quotient below one hundred and ten.

CHART V

THE RELATIONSHIP BETWEEN THE DECILE POSITION OF READING AGE IN GRADE ONE AND THE DECILE POSITION OF READING GRADE IN GRADE SIX FOR THE 147 CHILDREN HAVING AN INTELLIGENCE QUOTIENT OF ONE HUNDRED AND TEN AND ABOVE

Grade 6 Deciles

| | 3 | 10 | 11 | 20 | 14 | 19 | 16 | 22 | 13 | 19 | | 147 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | | | | 4 | 2 | 2 | 1 | 1 | 3 | 7 | 20 | |
| 9 | | 3 | 1 | 3 | | 1 | 1 | 1 | 2 | 3 | 15 | |
| 8 | 1 | | 1 | 2 | | 3 | 4 | 5 | 1 | 4 | 21 | |
| 7 | | | | 1 | 1 | 3 | 2 | 3 | 3 | | 13 | |
| 6 | 1 | 1 | | 1 | 1 | 3 | | 2 | 1 | 3 | 13 | |
| 5 | 1 | | 3 | 5 | 3 | 2 | 3 | 2 | 1 | 2 | 22 | |
| 4 | | 2 | | | 1 | 3 | | 2 | 1 | | 9 | |
| 3 | | 1 | 1 | 1 | 5 | | 3 | 1 | | | 12 | |
| 2 | | 1 | 3 | 1 | | 1 | 2 | 2 | 1 | | 11 | |
| 1 | | 2 | 2 | 2 | 1 | 1 | | 3 | | | 11 | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Gr. 1 Deciles | |

Chart V shows the relationship between the decile position of Reading Age in grade one and the decile position of Reading Grade in grade six for children with an Intelligence Quotion of one hundred and ten and above.

Three children w re in the first decile in grade one. In grade six there was one child in each of the fifth, sixth and eighth deciles.

Ten children were in the second decile in grade one. In grade six they ranged from two children in the first to three children in the ninth deciles. Sixty percent of these children were below the median in the sixth grade.

Eleven children were in the third decile in the first grade. Nine or eighty-one percent of these children were below the class median in grade six.

Fifty-eight of the children were below the median in grade one. Thirty-five children or sixty percent remained below the median in grade six. Twenty-three children or forty percent were able to accomplish better than average work in sixth grade reading.

Eighty-nine children were above the median in grade one. In grade six fifty-nine children or sixty-six percent remained above this point.

CHART VI

THE RELATIONSHIP BETWEEN THE DECILE POSITION OF READING AGE IN GRADE ONE AND THE DECILE POSITION OF READING GRADE IN GRADE SIX FOR 57 CHILDREN WITH AN INTELLIGENCE QUOTIENT OF LESS THAN ONE HUNDRED AND TEN

Grade 6 Deciles

| | 3 | 3 | 9 | 6 | 4 | 7 | 8 | 10 | 3 | 4 | | 57 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | | | | | | | | 1 | | | 1 | |
| 9 | | 1 | | 2 | | | | 1 | 1 | | 5 | |
| 8 | | | | | | 1 | | 2 | | | 3 | |
| 7 | | | 1 | | 1 | 1 | 2 | | | | 5 | |
| 6 | | | 2 | 1 | | 2 | | 3 | 1 | 1 | 10 | |
| 5 | 1 | 2 | 1 | | | 1 | | | | 1 | 6 | |
| 4 | 1 | | 3 | | | | 2 | | | | 6 | |
| 3 | | | | 1 | | 1 | 1 | 1 | 1 | 2 | 7 | |
| 2 | | | 1 | 1 | 1 | | 2 | | | | 5 | |
| 1 | 1 | | 1 | 1 | 2 | 1 | 1 | 2 | | | 9 | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Gr. 1 Deciles | |

Chart VI shows the relationship between the decile position of Reading Grade in grade one and the decile position of Reading Grade in grade six for children with an Intelligence Quotient of less than one hundred and ten.

There were fifteen children in the lower three deciles in grade one. In grade six, four children or twenty-six percent were above the median. Eleven children or seventy-four percent remained below this point.

Twenty-five children were below the median in grade one. In grade six eight children, or thirty-three percent, were able to do better than average work. Seventeen children or sixty-seven percent remained below the median.

In grade one there were thirty-two children above the median of the class. In grade six sixteen children or fifty percent remained above the median.

It is evident from Charts V and VI that the Intelligence Quotient is an important factor in determining the relationship between the decile position of Reading Age in grade one and the decile position of Reading Grade in grade six.

The information shown in Charts V and VI seemed to indicate that a child with an Intelligence Quotient above one hundred and ten had a much greater chance of success in sixth grade reading than a child with an Intelligence Quotient below that level. With this indication in mind it seemed advisable to further subdivide the Intelligence Quotient divisions so that a closer inspection might be made.

Four decile charts were made to show the relationship between the decile position of Reading Age in grade one and the decile position of Reading Grade in grade six at the following Intelligence Quotient levels.

CHART VII

THE RELATIONSHIP BETWEEN THE DECILE POSITION OF READING AGE IN GRADE ONE AND THE DECILE POSITION OF READING GRADE IN GRADE SIX FOR THE 75 CHILDREN WITH AN INTELLIGENCE QUOTIENT OF ONE HUNDRED AND TWENTY AND ABOVE

Grade 6 Deciles

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Gr. 1 Deciles | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 7 | 4 | 5 | 4 | 13 | 8 | 10 | 8 | 16 | | 75 |
| 10 | | | | 1 | | 2 | 1 | | 3 | 6 | 13 | |
| 9 | | 3 | 1 | | | 1 | 1 | 1 | 2 | 2 | 11 | |
| 8 | | | 1 | 1 | | 2 | 2 | 2 | | 3 | 11 | |
| 7 | | | | | 1 | 3 | 1 | 1 | 2 | | 8 | |
| 6 | | 1 | | | 1 | 2 | 1 | | 1 | 3 | 9 | |
| 5 | | | | 3 | | 1 | 1 | 2 | | 2 | 9 | |
| 4 | | 1 | | | 1 | 1 | | 2 | | | 5 | |
| 3 | | 1 | | | 1 | | 1 | | | | 3 | |
| 2 | | | 2 | | | 1 | | | | | 3 | |
| 1 | | 1 | | | | | | 2 | | | 3 | |

Chart VII shows the relationship between the decile position of Reading Age in grade one and the decile position of Reading Grade in grade six for children with an Intelligence Quotient of one hundred twenty and above.

Seventy three children, or thirty-one percent of the class were in this group in grade one. Twenty children, or twenty-seven percent were below the median in grade one. In grade six ten of these children or fifty

percent had raised their relative placement to above the median.

Fifty-three children or sixty-nine percent were above the median in grade one. In grade six forty-three children or eighty-one percent remained above the median of the class.

It is significant to note that twenty-four children were in deciles nine and ten in grade one. Twenty-one, or ninety-one percent, of these children remained above the median of the class in grade six.

CHART VIII

THE RELATIONSHIP BETWEEN THE DECILE POSITION OF READING AGE IN GRADE ONE AND THE DECILE POSITION OF READING GRADE IN GRADE SIX FOR THE 65 CHILDREN HAVING AN INTELLIGENCE QUOTIENT FROM ONE HUNDRED AND TEN TO ONE HUNDRED AND NINTEEN

| Grade 6 Deciles | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 3 | 8 | 15 | 6 | 5 | 4 | 12 | 8 | 3 | | 65 |
| 10 | | | | 3 | | 1 | | | 2 | 1 | 7 | |
| 9 | | | | 1 | | | | | 1 | 1 | 3 | |
| 8 | | | | 1 | | | 1 | 3 | 1 | 1 | 7 | |
| 7 | | | | | | | | 2 | 1 | | 3 | |
| 6 | | | 1 | | | 1 | | 3 | | | 5 | |
| 5 | 1 | | 3 | 4 | 1 | | | | 1 | | 10 | |
| 4 | | 1 | | 1 | | 2 | | | 1 | | 5 | |
| 3 | | | 1 | 2 | 4 | | 2 | 1 | | | 10 | |
| 2 | | 1 | 2 | 1 | | | 1 | 1 | 1 | | 7 | |
| 1 | | 1 | 1 | 2 | 1 | 1 | | 2 | | | 8 | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Gr. 1 Deciles | |

Chart VIII shows the relationship between the decile position of Reading Age in grade one and the decile position of Reading Grade in grade six for children having an Intelligence Quotient from one hundred and ten to one hundred and ninteen.

There were thirty-three children, or approximately fifty percent, below the median in grade one. In grade six twenty-seven, or eighty-one percent remained below this point.

There were thirty-two children above the median in grade one. In grade six, ninteen children, or fifty-nine percent, remained above the median of the class.

CHART IX

THE RELATIONSHIP BETWEEN THE DECILE POSITION OF READING AGE IN GRADE ONE AND THE DECILE POSITION OF READING GRADE IN GRADE SIX FOR THE 54 CHILDREN HAVING AN INTELLIGENCE QUOTIENT FROM NINETY-NINE TO ONE HUNDRED AND NINE

| Grade 6 Deciles | 4 | 3 | 8 | 6 | 3 | 6 | 9 | 9 | 3 | 3 | | 54 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | | | | | | | | 1 | | | 1 | |
| 9 | | 1 | | 2 | | | | 1 | 1 | | 5 | |
| 8 | | | | | | 1 | | 2 | | | 3 | |
| 7 | | | 1 | | | | 2 | | | | 3 | |
| 6 | 1 | | 1 | 1 | | 1 | | 3 | 1 | 1 | 9 | |
| 5 | 1 | 2 | 1 | | | 2 | | | | 1 | 7 | |
| 4 | 1 | | 3 | | | | 1 | | | | 5 | |
| 3 | | | | 1 | | 2 | 2 | | 1 | 1 | 7 | |
| 2 | | | 1 | 1 | 1 | | 3 | | | | 6 | |
| 1 | 1 | | 1 | 1 | 2 | | 1 | 2 | | | 8 | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Gr. 1 Deciles | |

Chart IX shows the relationship between the decile position of Reading Age in grade one and the decile position of Reading Grade in grade six for the children with an Intelligence Quotient from ninety-nine to one hundred and nine.

Twenty-four of the children were below the median in grade one. In grade six seventeen, or seventy percent, of the children remained below that point.

Thirty children were above the median in grade one. In grade six fourteen, or forty-six percent, of the children remained above this point.

CHART X

THE RELATIONSHIP BETWEEN THE DECILE POSITION OF READING AGE IN GRADE ONE AND THE DECILE POSITION OF READING GRADE IN GRADE SIX FOR 5 CHILDREN WITH AN INTELLIGENCE QUOTIENT OF EIGHTY-NINE AND BELOW

| Grade 6 Deciles | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Gr. 1 Deciles |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | | | 1 | | 1 | | | | | 1 | 5 |
| 9 | | | | | | | | | | | |
| 8 | | | | | | | | | | | |
| 7 | | | | | 1 | 1 | | | | | 2 |
| 6 | | | 1 | | | | | | | | 1 |
| 5 | | | | | | | | | | | |
| 4 | | | | | | | | | | | |
| 3 | | | | | | | | | | | |
| 2 | | | | | | 1 | | | | 1 | 2 |
| 1 | | | | | | | | | | | |

Chart X shows the relationship of the decile position of Reading Age in grade one and the decile position of Reading Grade in grade six for children with an Intelligence Quotient of eighty-nine and below.

There were only five children in this group. The range was so great at both the first and the sixth grade levels that no trend is indicated.

<u>Summary Of Charts VII, VIII, IX And X</u>

Charts VII, VIII, IX and X which show the relationship

between the decile position of Reading Age in grade one and the decile position of Reading Grade in grade six at four Intelligence Quotient levels show that in the group of:

1. Children with an Intelligence Quotient of one hundred and twenty and above, fifty, or sixty-eight percent, of the seventy-three children were above the class in grade six regardless of first grade placement.

2. Children with an Intelligence Quotient from one hundred and ten to one hundred and ninteen, who were above the median in grade one, have a better than fifty-fifty chance of remaining there while a child below the median in grade one has only one chance in five of doing work at the median or above in grade six.

3. Children with an Intelligence Quotient of ninety to one hundred and nine who were above the median in grade one, have four chances in six of remaining above that point, while the children below the median in grade one have one chance in nine of doing work at the median or above in grade six.

4. These four charts show that the influence of the Intelligence Quotient is significant in the prediction of the relationship between the decile position of Reading Age in grade one and the decile position of Reading Grade in grade six.

Reconsideration Of Data

Since the relationship between the decile position of Reading Age in grade one and the decile position of Reading Grade in grade six was still not as high as was expected it seemed wise to consider other factors.

The two hundred and seven children had been schooled under the same Philosophy of Education, and taught the same reading system. The only variable would be in the teaching in the eleven rooms in the six Elementary schools.

The next step seemed to be to make decile charts to show the relationship between the decile position of Reading Age in grade one and the decile position of Reading Grade in grade six for each of the six Elementary Schools.

CHART XI

THE RELATIONSHIP OF THE DECILE POSITION OF READING AGE IN GRADE ONE AND THE DECILE POSITION OF READING GRADE IN GRADE SIX FOR SCHOOL A

| Grade 6 Deciles | 1 | 2 | 4 | 3 | 4 | 6 | 1 | 3 | | 25 |
|---|---|---|---|---|---|---|---|---|---|---|
| 10 | | | 1 | 1 | | | | 1 | 3 | |
| 9 | 1 | | | | | | 1 | | 2 | |
| 8 | | | | | 2 | 1 | | 2 | 5 | |
| 7 | | | | | 2 | 1 | | | 3 | |
| 6 | | | | 1 | | 3 | | | 4 | |
| 5 | | | 1 | 1 | | | | | 2 | |
| 4 | | 1 | 1 | | | | | | 2 | |
| 3 | | | 2 | | | 1 | | | 3 | |
| 2 | | | | | | | | | | |
| 1 | | 1 | | | | | | | 1 | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 Gr. 1 Deciles |

Chart XI shows the relationship of the decile position of Reading Age in grade one and the decile position of Reading Grade in grade six for school A.

There was but one child in the lower two deciles in grade one. In grade six this child was in the ninth decile.

There were two children in the third decile in grade one. In grade six there was one child in each of the first and fourth deciles.

Four children were in the fourth decile in grade one. Three children grouped in the third, fourth, and fifth

deciles in grade six. One child was in the tenth decile.

Seven children were below the median in grade one. Five children, or seventy-one percent, remained below this point in grade six.

Three children were in the sixth decile in grade one. One child was in each of the fourth, fifth, and tenth deciles in grade six.

Four children were in the seventh decile in grade one. In grade six there were two children in each of the seventh and eighth deciles.

Six children were in the eighth decile in grade one. In grade six there were three children in deciles six, and one child in each of the deciles three, seven and eight.

One child was in the ninth decile in both the first and the sixth grades.

Three children were in the tenth decile in grade one. Two children were in the eighth, and one child was in the tenth decile in grade six.

Seventeen children were above the median in grade one. Fifteen, or eighty-eight percent, of the children remained above the median in grade six.

Chart XI shows very positive relationship in School A between the decile position of Reading Age in grade one and the decile position of Reading Grade in grade six.

CHART XII

THE RELATIONSHIP BETWEEN THE DECILE POSITION OF READING AGE IN GRADE ONE AND THE DECILE POSITION OF READING GRADE IN GRADE SIX FOR SCHOOL B

| Grade 6 Deciles | 1 | 2 | 3 | 5 | 1 | 9 | 4 | 4 | 8 | 5 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | | | | 1 | | 1 | | | 1 | | 3 | 42 |
| 9 | | | | | | 1 | | | 1 | 1 | 3 | |
| 8 | | | | | | 2 | | 2 | | | 4 | |
| 7 | | | | | | 2 | 1 | 1 | 2 | | 6 | |
| 6 | | 1 | | 1 | | 2 | | | 1 | 3 | 8 | |
| 5 | | 1 | | 2 | | 1 | | | 1 | | 5 | |
| 4 | | | | | | | 1 | 1 | 1 | | 3 | |
| 3 | | | 1 | | 1 | | 2 | | 1 | 1 | 6 | |
| 2 | | | 2 | 1 | | | | | | | 3 | |
| 1 | 1 | | | | | | | | | | 1 | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Gr. 1 Deciles | |

Chart XII shows the decile position of Reading Age in grade one and the decile position of Reading Grade in grade six for School B.

There was one child who was in the first decile in both grade one and six.

Two children were in the second decile in grade one. In grade six there was one child in each of the fifth and sixth deciles.

Three children were in the third decile in grade one.

Two children were in the second and one child was in the third deciles in grade six.

Five children were in the third decile in grade one. In grade six they ranged from one in the second to one in the tenth decile. Three children of the five remained below the median of the class.

One child was in the fifth decile in grade one. In grade six the child was in the third decile.

There were twelve children below the median in grade one. Nine children, or seventy-five percent, remained below the median in grade six.

Fifty children were above the median in grade one. Twenty-one, or seventy percent, remained above this point in grade six.

Chart XII shows very positive relationship in School B between Reading Age in grade one and Reading Grade in grade six.

CHART XIII

THE RELATIONSHIP BETWEEN THE DECILE POSITION OF READING AGE IN GRADE ONE AND THE DECILE POSITION OF READING GRADE IN GRADE SIX FOR SCHOOL C

| Grade 6 Deciles | 1 | 2 | 4 | 7 | 5 | 7 | 4 | 4 | 3 | 2 | | 39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | | | | 2 | | 1 | | 1 | 1 | 1 | 6 | |
| 9 | | 1 | | 2 | | | 1 | 1 | | | 5 | |
| 8 | | | 1 | | | 1 | | | 1 | | 3 | |
| 7 | | | | | | 2 | | | | | 2 | |
| 6 | | | 1 | | | | 1 | | 1 | | 3 | |
| 5 | 1 | | 1 | | | 1 | 1 | 1 | | 1 | 6 | |
| 4 | | | 1 | | 1 | 1 | | | | | 3 | |
| 3 | | | | | 2 | | | | | | 2 | |
| 2 | | | | 1 | | | 1 | | | | 2 | |
| 1 | | 1 | | 2 | 2 | 1 | | 1 | | | 7 | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Gr. 1 Deciles | |

Chart XIII shows the relationship between the decile position of Reading Age in grade one and the decile position of Reading Grade in grade six for School C.

The entries on this chart show great range in all deciles.

Ninteen children were below the median in grade one. Twelve, or sixty-three percent, of the children remained below this point in grade six.

Twenty-one children were above the median in grade one. Twelve, or fifty-seven percent, remained above this point

in grade six.

It is significant to note that there were twenty children below the median in grade one and nineteen children below this point in grade six. Also that nineteen children fell above the median in grade one and twenty-one children were above the median in grade six.

CHART XIV

THE RELATIONSHIP BETWEEN THE DECILE POSITION OF READING AGE IN GRADE ONE AND THE DECILE POSITION OF READING GRADE IN GRADE SIX FOR SCHOOL D

| Grade 6 Deciles | 3 | 4 | 1 | 2 | 3 | 7 | 9 | 4 | 6 | | 39 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | | | | | | 1 | | 3 | 1 | 5 | |
| 9 | | | | | | | | | 1 | 1 | |
| 8 | | | | | | | 1 | | 2 | 3 | |
| 7 | | | | | | | 2 | | | 2 | |
| 6 | | | | | | | 1 | | 1 | 2 | |
| 5 | | 1 | | | | | | | 1 | 2 | |
| 4 | | 1 | | | | | 1 | | | 2 | |
| 3 | 1 | | | | 2 | 2 | 1 | | | 6 | |
| 2 | 1 | 2 | | 1 | | 3 | 1 | 1 | | 9 | |
| 1 | 1 | | 1 | 1 | 1 | 1 | 2 | | | 7 | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Gr. 1 Deciles | |

Chart XIV shows the relationship between the decile position of reading age in grade one and the decile position of Reading Grade in grade six for school D.

The scores on this chart ranged very low in grade six.

Ten children were below the median in grade one. All ten children remained below this point in grade six.

Twenty-nine children were above the median in grade one. In grade six thirteen children, or thirty-three percent, remained above this point.

It is significant to note that there were seven children in the lower three deciles in grade one. Twenty-two children were in the lower three deciles in grade six.

Ten children were in the ninth and tenth deciles in grade one. Eight, or eighty percent of the children remained above the median in grade six.

Ninteen children were in deciles six, seven and eight in grade one. Five children, or twenty-five percent remained above this point in grade six.

Because of the foregoing reasons, it is evident that Chart XIV for School D has a trend that differs greatly, namely, in that the low placement of the middle deciles in grade six is not found in any of the other schools.

CHART XV

THE RELATIONSHIP BETWEEN THE DECILE POSITION OF READING AGE IN GRADE ONE TO THE DECILE POSITION OF READING GRADE IN GRADE SIX FOR SCHOOL E

| Grade 6 Deciles | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 1 | 3 | 4 | 1 | | 1 | | 1 | 3 | | 15 |
| 10 | | | | | | | | | | 2 | 2 | |
| 9 | | 1 | 1 | 1 | | | | | 1 | | 4 | |
| 8 | | | | 2 | | | 1 | | | | 3 | |
| 7 | | | 1 | | 1 | | | | | | 2 | |
| 6 | | | 1 | | | | | | | | 1 | |
| 5 | 1 | | | 1 | | | | | | | 2 | |
| 4 | | | | | | | | | | | | |
| 3 | | | | | | | | | | 1 | 1 | |
| 2 | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Gr. 1 Deciles | |

Chart XV shows the relationship between the decile position of Reading Age in grade one and the decile position of Reading Grade in grade six for school "E".

The scores in this chart range very high in grade six.

Ten children were below the median in grade one. In grade six eight children, or eighty percent, remained above this point.

Five children were above the median in grade one. Four children, or eighty percent, remained above this point in grade six.

It is significant to note the difference between charts XIV and XV. In the former, the trend was low in comparison with the Schools A, B, and C. School E has a trend that is much higher than any of the other schools used in this study.

CHART XVI

THE RELATIONSHIP BETWEEN THE DECILE POSITION OF READING AGE IN GRADE ONE AND THE DECILE POSITION OF READING GRADE IN GRADE SIX IN SCHOOL "F"

| Grade 6 Deciles | 2 | 4 | 5 | 8 | 4 | 3 | 1 | 8 | 2 | 3 | | 40 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | | | | 1 | | | | | 1 | 1 | 3 | |
| 9 | | 1 | | | | | | 1 | | 1 | 3 | |
| 8 | | | | | | | | 2 | | | 2 | |
| 7 | | | | | 1 | | | 1 | 1 | | 3 | |
| 6 | 1 | | | 1 | | 1 | | 1 | | | 4 | |
| 5 | | 1 | 2 | 4 | 1 | 1 | | 1 | | 1 | 11 | |
| 4 | 1 | 2 | 1 | | | | 1 | | | | 5 | |
| 3 | | | | 2 | 2 | 1 | | | | | 5 | |
| 2 | | | | | | | | | | | | |
| 1 | | | 2 | | | | | 2 | | | 4 | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Gr. 1 Deciles | |

Chart XVI shows the relationship between the decile position of Reading Age in grade one and the decile position of Reading Grade in the sixth grade in School "F".

Eleven children were in the first three deciles in grade one. In grade six seven children centered in deciles

four and five. One was in each of the sixth and eighth deciles. Two children were in decile one.

Twenty-three children were below the median in grade one. Eighteen children, or seventy-eight percent, remained below this point in grade six.

Seventeen children were above the median in grade one. Ten children, or fifty-nine percent, remained above this point in grade six.

Chart XVI for School "F" establishes positive relationship between Reading Age in grade one and Reading Grade in grade six.

Evaluation Of Charts XI, XII, XIII, XIV, XV And XVI.

The similar trend in Charts XI, XII, XIII and XVI and the dissimilar trend of Charts XIV, and XV brought forth the question of equal potential abilities within the six Elementary schools. With this in mind a distribution of Intelligence Quotients was made.

TABLE I

DISTRIBUTION OF INTELLIGENCE QUOTIENTS
FOR THE SIX ELEMENTARY SCHOOLS

| I. Q. | School "A" | "B" | "C" | "D" | "E" | "F" |
|---|---|---|---|---|---|---|
| 150 | | | | | | |
| 145 | 1 | 1 | 2 | | 1 | |
| 140 | 1 | | | | 1 | |
| 135 | 1 | | 1 | 2 | 2 | 3 |
| 130 | 7 | 1 | 6 | 3 | 2 | 10 |
| 125 | 9 | 8 | 7 | 5 | 3 | 15 |
| 120 | 6 | 11 | 7 | 7 | 5 | 16 |
| 115 | 9 | 9 | 8 | 13 | 5 | 9 |
| 110 | 11 | 5 | 9 | 20 | 2 | 13 |
| 105 | 10 | 6 | 11 | 10 | 4 | 2 |
| 100 | 5 | 1 | 4 | 8 | 2 | 4 |
| 95 | 7 | 4 | 4 | 3 | | 2 |
| 90 | 1 | 1 | 1 | 3 | | |
| 85 | 3 | | 3 | | 2 | |
| 80 | 1 | | | | 1 | |
| 75 | | | | | | |

Table I shows the Intelligence Quotient distribution for the six Elementary schools. The Intelligence Quotient is based on the Stanford-Benet test given by the same examiner during the year in Kindergarten.

In Table I the median Intelligence Quotient for schools "A", "D", and "F" is one hundred and ten. Schools "B", "C" and "E" have a median Intelligence Quotient of one hundred and fifteen. This proves that the median Intelligence Quotient in all six Elementary schools was between 110 and 115.

Because of the data of Table I it seems evident that the Potential abilities in all schools were nearly equal.

The children in the six Elementary schools were schooled under the same philosophy of education, taught the same reading system and have approximately the same median Intelligence Quotient. The only other variable was the teaching in the schools. This fact must have caused the high trend in school "E" and the low trend in school "D".

TABLE II

SUMMARY OF DECILE CHARTS XI THROUGH XVI

| | Above Median | | | Below Median | | Below Median | | | Above Median | |
|---|---|---|---|---|---|---|---|---|---|---|
| School | Gr.I | Gr.VI | % | Gr.VI | % | Gr.I | Gr.VI | % | Gr.VI | % |
| "A" | 17 | 15 | 88 | 2 | 12 | 7 | 5 | 72 | 2 | 28 |
| "B" | 30 | 21 | 70 | 9 | 30 | 12 | 9 | 75 | 3 | 25 |
| "C" | 20 | 12 | 57 | 8 | 43 | 19 | 12 | 64 | 7 | 36 |
| "D" | 29 | 13 | 44 | 16 | 56 | 10 | 10 | 100 | 0 | 0 |
| "E" | 5 | 4 | 80 | 1 | 20 | 10 | 2 | 20 | 8 | 80 |
| "F" | 17 | 10 | 59 | 7 | 41 | 23 | 17 | 74 | 6 | 26 |

Table II is a summary of decile charts XI through XVI. It shows that:

1. In school "D" only forty-four percent of the children above the median in grade one remained there in grade six while the percentage who remained above the median in the other five schools ranged from fifty-seven to eighty-eight percent.

2. In school "D" one hundred percent of the children who were below the median in grade one remained there in grade six. In schools "A", "B", "C" and "F", the percent of children who were below the median in grade one and remained there in grade six ranged from sixty-four to seventy-five percent.

3. In school "E" only twenty percent of the children who were below the median in grade one remained there in

grade six.

4. The trend is very similar for schools "A", "B", "C" and "F", in that positive relationship was shown between Reading Age in grade one and Reading Grade in grade six.

5. The trend in school "D", although similar to the others in grade one, runs very low in grade six and does not resemble that of any of the other schools in the study.

6. The trend in school "E" runs very high in grade six and does not resemble that of any other school in the study.

7. In examining the discrepancies in these trends and considering the histories of the schools over this period of time, it appeared that a change of teachers in school "D", and an exceptional amount of change in pupil personnel in school "E" coupled with unusual absence in school during grade one caused by contageous diseases made the findings in these schools seem unrepresentative either of their usual work or of the town as a whole.

8. In consideration of the above facts it seems evident that for reasons beyond our control schools "D" and "E" are no longer of statistical value.

CHART XVII

THE RELATIONSHIP BETWEEN THE DECILE POSITION OF READING AGE IN GRADE ONE AND THE DECILE POSITION OF READING GRADE IN GRADE SIX FOR SCHOOLS "A", "B", "C" AND "F"

| Grade 6 Deciles | 4 | 7 | 17 | 21 | 9 | 23 | 12 | 23 | 14 | 13 | | 143 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | | | | 5 | | 2 | | 1 | 3 | 3 | 14 | |
| 9 | | 1 | | 2 | | 1 | 1 | 2 | 2 | 2 | 11 | |
| 8 | | | | | | 3 | 2 | 5 | 1 | 2 | 14 | |
| 7 | | | | | 1 | 4 | 3 | 3 | 3 | | 14 | |
| 6 | 1 | 1 | 2 | 1 | | 4 | 1 | 4 | 2 | 3 | 19 | |
| 5 | 1 | 2 | 3 | 6 | 1 | 4 | 1 | 2 | 1 | 2 | 23 | |
| 4 | 1 | 2 | 5 | 1 | 1 | 1 | 2 | 1 | 1 | | 15 | |
| 3 | | | 1 | 3 | 3 | 3 | 2 | 1 | 1 | 1 | 15 | |
| 2 | | | 2 | 1 | 1 | | | 1 | | | 5 | |
| 1 | 1 | 1 | 3 | 2 | 2 | 1 | | 3 | | | 13 | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Gr. 1 Deciles | |

Chart XVII shows the relationship between the decile position of Reading Age in grade one and the decile position of Reading Grade in grade six for schools "A", "B", "C" and "F".

Fifty-eight children were elow the median in grade one. Forty-three, or seventy-four percent of the children, remained below this point in grade six.

Eighty-five children were above the median in grade one. Fifty-seven children, or sixty-seven percent, remained

above that position in grade six.

In combining these figures there were one hundred forty-three children in the class. One hundred fifteen, of seventy-eight percent of the class did not change position in relation to the median.

Further study to determine the relationship between the decile position of Reading Age in grade one and the decile position of Reading Grade in grade six limits itself to decile chart XVII.

TABLE III

AMOUNT OF VARIATION IN PLACEMENT OF DECILES

| Deciles | -9 | -8 | -7 | -6 | -5 | -4 | -3 | -2 | -1 | 0 | +1 | +2 | +3 | +4 | +5 | +6 | +7 | +8 | +9 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | | | 1 | | 2 | 3 | | 2 | 2 | | | | | | | | | | | |
| 9 | | | | 1 | 1 | 1 | 2 | 3 | 1 | | 3 | | | | | | | | | |
| 8 | | | 3 | 1 | 1 | 1 | 2 | 4 | 3 | | 2 | 1 | | | | | | | | |
| 7 | | | | | | 2 | 2 | 1 | 1 | | 2 | 1 | | | | | | | | |
| 6 | | | | | 1 | 0 | 3 | 1 | 4 | | 4 | 3 | 1 | 2 | | | | | | |
| 5 | | | | | | 2 | 1 | 3 | 1 | | 0 | 1 | | | | | | | | |
| 4 | | | | | | | 2 | 1 | 3 | | 6 | 1 | | | 2 | 5 | | | | |
| 3 | | | | | | | | 3 | 2 | | 5 | 3 | 2 | | 1 | | | | | |
| 2 | | | | | | | | | 1 | | | 2 | 2 | 1 | | | | 1 | | |
| 1 | | | | | | | | | | | | | 1 | 1 | 1 | | | | | |
| | | | 4 | 2 | 5 | 9 | 12 | 18 | 18 | | 22 | 12 | 6 | 4 | 4 | 5 | | 1 | | =122 |

| | | | | |
|---|---|---|---|---|
| 1 | 40 | x 1 | = | 40 |
| 2 | 30 | x 2 | = | 60 |
| 3 | 18 | x 3 | = | 54 |
| 4 | 13 | x 4 | = | 52 |
| 5 | 9 | x 5 | = | 45 |
| 6 | 7 | x 6 | = | 42 |
| 7 | 5 | x 7 | = | 35 |
| | 122 | | | 338 = Total Displacements |
| | | | | +19 = Same Decile |

143 / 357 = Total Chances

2.5 = Average Displacement

Table III was developed to show the amount of variation in placement between the decile position of Reading Age in grade one and the decile position of Reading Grade in grade six as shown in decile chart XVII.

Table III shows that: 1. One hundred and forty-three children entered in decile chart XVII. One hundred and twenty-two were not in the same decile in both grades one and six.

2. Ninteen children or thirteen percent remained in the same decile in both grades.

3. Forty children, or thirty-six percent varied one decile between grade one and grade six.

4. Thirty children or twenty percent, varied two deciles between grade one and six.

5. Eighteen children varied three deciles between grade one and six.

6. The number of children that varied more than three deciles totals thirty-five.

7. It is proper to allow the variation of one decile for error in testing. Therefore, fifty-nine children, or forty-one percent, remained in the same decile in both the first and the sixth grade.

8. One hundred and seven children, or seventy-four percent of the children, did not vary over three deciles between grade one and grade six.

9. The average displacement between the decile position of Reading Age in grade one and the decile position of Reading Grade in Grade six is 2.5 deciles.

CHART XVIII

THE RELATIONSHIP BETWEEN THE DECILE POSITION OF READING AGE IN GRADE ONE AND THE DECILE POSITION OF READING GRADE IN GRADE SIX FOR THE 54 CHILDREN WITH AN I.Q. OF 120 AND ABOVE IN SCHOOLS A, B, C, AND F.

| Grade 6 Deciles | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 | 2 | 4 | 5 | 12 | 6 | 8 | 6 | 7 | | | 54 |
| 10 | | | | 1 | | 2 | | 1 | 2 | 2 | 8 | |
| 9 | | 2 | | 1 | | 1 | 1 | 1 | 1 | 1 | 8 | |
| 8 | | | 1 | | | 2 | 2 | 2 | | 1 | 8 | |
| 7 | | | | | 1 | 3 | 1 | 1 | 2 | | 8 | |
| 6 | | 1 | | | 1 | 1 | 1 | | 1 | 2 | 7 | |
| 5 | | | | 2 | 1 | 1 | 1 | 2 | | 1 | 8 | |
| 4 | | 1 | | | 1 | 1 | | 1 | | | 4 | |
| 3 | | | | | 1 | | | | | | 1 | |
| 2 | | | 1 | | | 1 | | | | | 2 | |
| 1 | | | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Gr. 1 Deciles | |

Chart XVIII shows the relationship between the decile position of Reading Age in grade one and the decile position of Reading Grade in grade six for the 54 children who have an I. Q. of 120 and above in schools A, B, C, and F.

There were 15 children below the median in grade one, seven or 46% of the children were below the median in

grade six.

There were 39 children above the median in grade one, thirty-one or 79% of the children remained above the median in grade six.

There were 21 children in the upper three deciles in grade one, seventeen or 80% remained above the median in grade six.

CHART XIX

THE RELATIONSHIP BETWEEN THE DECILE POSITION OF READING AGE IN GRADE ONE AND THE DECILE POSITION OF READING GRADE IN GRADE SIX FOR THE 45 CHILDREN WITH AND I.Q. FROM 110 TO 119 IN SCHOOLS A, B, C AND F.

| Grade 6 Deciles | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2 | 7 | 14 | 5 | 2 | 2 | 5 | 5 | 3 | 45 |
| 10 | | | | 3 | | 1 | | | | 1 | 5 |
| 9 | | | | 1 | | | | | 1 | 1 | 3 |
| 8 | | | | | | | | 1 | 1 | 1 | 3 |
| 7 | | | | | | | | 1 | 1 | | 2 |
| 6 | | | | 1 | | 1 | | 1 | | | 3 |
| 5 | | | 3 | 4 | 1 | | | | 1 | | 9 |
| 4 | | 1 | | 1 | | | | | | | 2 |
| 3 | | | 1 | 2 | 4 | | 2 | | 1 | | 10 |
| 2 | | | 2 | 1 | | | | | | | 3 |
| 1 | | 1 | 1 | 1 | | | | 2 | | | 5 |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Gr. 1 Deciles |

Chart XIX shows the relationship between the decile position of reading age in grade one and the decile position of reading grade in grade six for the 45 children who have an I.Q. from 110 to 119 in schools A, B, C and F.

There were 28 children below the median in grade one. Twenty-three or 82% of the children remained below the median in grade six.

There were 17 children above the median in grade one. Eleven or 64% of the children remained above the median in grade six.

There were 13 children in the upper three deciles in grade one. Nine or 69% of the children remained above the median in grade six.

CHART XX

THE RELATIONSHIP BETWEEN THE DECILE POSITION OF READING AGE IN GRADE ONE AND THE DECILE POSITION OF READING GRADE IN GRADE SIX FOR THE 43 CHILDREN WITH AN I.Q. FROM 90 TO 109 IN SCHOOLS A, B, C AND F.

| Grade 6 Deciles | 4 | 3 | 5 | 5 | 1 | 6 | 5 | 9 | 2 | 3 | | 43 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | | | | | | | | 1 | | | 1 | |
| 9 | | 1 | | 1 | | | | 1 | | | 3 | |
| 8 | | | | | | 1 | | 2 | | | 3 | |
| 7 | | | | | | | 2 | | | | 2 | |
| 6 | 1 | | 1 | 1 | | 1 | | 3 | 1 | 1 | 9 | |
| 5 | 1 | 2 | | | | 2 | | | | 1 | 6 | |
| 4 | 1 | | 3 | | | | 2 | | | | 6 | |
| 3 | | | | 1 | | 1 | | 1 | 1 | 1 | 5 | |
| 2 | | | | 1 | | | 1 | | | | 2 | |
| 1 | 1 | | 1 | 1 | 1 | 1 | | 1 | | | 6 | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Gr. 1 Deciles | |

Chart XX shows the relationship between the decile position of Reading Age in grade one and the decile position of Reading grade in grade six for the 43 children with an I.Q. from 90 to 109 in schools A, B, C and F.

There were 18 children below the median in grade one. Thirteen or 72% of the children remained below the median in grade six.

There were 25 children above the median in grade one. Thirteen or 52% of the children remained above the median in grade six.

There were 14 children in the upper three deciles in grade one. Nine or 66% of the children remained above the median in grade six.

There were only two children in schools A, B, C and F with an I.Q. below 90. The decile position of these would seem to be of no importance.

Summary Of Charts XVIII, XIX And XX

Charts XVIII, XIX, and XX which show the relationship between the decile position of Reading Age in grade one and the decile position of Reading Grade in grade six at three intelligence quotient levels show that:

1. In the group with an I.Q. of 120 and above:

a. The children below the median in grade one have a fifty-fifty chance of doing better than median work in grade six.

b. The children above the median in grade one have eight chances in ten of remaining there in grade six.

2. In the group with an I.Q. from 110 to 119:

a. The children below the median in grade one have one chance in eight of doing better than median work in grade six.

b. The children above the median in grade one have six out of ten chances of remaining there in grade six.

3. In the group with an I.Q. from 90 to 109:

a. Children below the median in grade one have one chance in seven of doing better than median work in grade six.

b. children above the median in grade one have about a fifty-fifty chance of remaining there in grade six.

The study thus far has not delt directly with the importance of the intelligence quotient which was the second part of the original problem.

It did not seem reasonable to omit those children who repeated a grade but were still in the system, in consideration of the part which the intelligence quotient plays in prediction, Table IV was prepared to show the distribution of the intelligence quotient among the repeaters.

TABLE IV

DISTRIBUTION OF INTELLIGENCE QUOTIENTS FOR THE 26 CHILDREN WHO WERE IN GRADE ONE IN 1939 BUT HAVE REPEATED ONE YEAR AND ARE BEHIND THE CLASS WHICH WAS USED IN THE STUDY.

| I.Q. | Number of Children |
|---|---|
| 140 | |
| 135 | 1 |
| 130 | |
| 125 | |
| 120 | |
| 115 | 1 |
| 110 | 4 |
| 105 | 6 |
| 100 | 2 |
| 95 | 7 |
| 90 | 3 |
| 85 | 2 |
| 8 0 | |

Table IV shows the distribution of the intelligence quotients for the 26 children who were in the first grade in 1939 but have repeated one year and are behind the class which was used for this study.

There was one child with an I.Q. of 135

There was one child with an I.Q. of 115.

There were four children with an I.Q. of 110.

There were six children with an I.Q. of 105.

There were two children with an I.Q. of 100.

There were seven children with an I.Q. of 95.

There were three children with an I.Q. of 90.

There were two children with an I.Q. of 85.

It should be noted that only two children with an I.Q. above 110 have repeated.

TABLE V

THE ACHIEVEMENT OF SIXTH GRADE READING AT THE I.Q. LEVELS.

120 I.Q. and Above

| | Reg.Class | R'pt | Total | % |
|---|---|---|---|---|
| Upper 3 Deciles | 24 | | 24 | 43 |
| Above Median | 39 | 1 | 40 | 72 |
| Below Median | 15 | 0 | 15 | 27 |
| Lower 3 Deciles | 3 | 0 | 3 | 5 |

110-119 I.Q.

| | Reg.Class | R'pt | Total | % |
|---|---|---|---|---|
| Upper 3 Deciles | 11 | 0 | 11 | 22 |
| Above Median | 16 | 0 | 16 | 32 |
| Below Median | 29 | 5 | 34 | 68 |
| Lower 3 Deciles | 18 | 4 | 22 | 44 |

9 0-109 I.Q.

| | Reg.Class | R'pt | Total | % |
|---|---|---|---|---|
| Upper 3 Deciles | 7 | 0 | 7 | 11 |
| Above Median | 18 | 0 | 18 | 30 |
| Below Median | 25 | 18 | 43 | 70 |
| Lower 3 Deciles | 13 | 17 | 30 | 50 |

Table V shows the reading achievement at the end of grade six for the children who were in grade one in 1939 and were in the system in 1944. This includes data drawn from Charts XVIII, XIX, XX and Table IV.

In the group of 55 children with an I.Q. of 120 and above:

There were 24 or 43% in the upper three deciles in grade six.

There were 40 or 72% above the median in grade six.

There were 15 children who reached the sixth grade and 1 repeater, making a total of 16 children, or 29% below the median in grade six.

There were three children, or 5%, in the lower three deciles in grade six.

The one repeating pupil whose I.Q. was in this group inspite of his lower grade placement was reading above the median.

In the group of 50 children with an I.Q. from 110 to 119:

There were 11 or 22% in the upper three deciles in grade six.

There were 16 children or 32% above the median in grade six.

There were 29 children in the regular class and 5 repeaters, making a total of 34 children below the median in grade six.

There were 18 children in the regular class and 4 repeaters, making a total of 22 children in the lower

three deciles in grade six.

In the group of 60 children with an I.Q. from 90 to 109:

There were 7 or 11% of the children in the upper three deciles in grade six.

There were 18 or 30% of the children above the median in grade six.

There were 25 of the regular class and 18 repeaters making a total of 43 or 70% of the children below the median in grade six.

There were 13 of the regular class and 17 repeaters making a total of 30 children who were in the lower three deciles in grade six.

From these finding it is apparent that the intelligence quotient is one of the most important factors in predicting achievement in reading.

# CHAPTER IV

## CONCLUSIONS

1. What does relative rank in reading achievement, as shown by standard test scores at the end of grade one, predict as to reading placement in grade six?

2. Is the Intelligence Quotient a more reliable prediction for relative placement?

3. Does the consideration of both first grade achievement, as shown by standard tests, and the intelligence quotient increase the accuracy of prediction?

The study was made by using the standard achievement and intelligence test results that were available in the files of the Guidance department for the children in the elementary schools for the period from 1939 to and including 1944. Decile charts were made to show the relationship between the decile position of reading age in grade one and the decile position of reading grade in grade six.

The decile charts mentioned above were divided to show the relationship of the decile position of reading age in grade one and the decile position of reading grade in grade six at the following Intelligence Quotient levels:

1. The children having an I.Q. of 120 and above.
2. The children having an I.Q. of 110 to 119.

3. The children having an I.Q. from 90 to 109.

4. The children having an I.Q. of 89 and below.

The following statements summarize the findings brought out through a study of the decile charts:

1. There were 58 children below the median in grade one. 43 or 74% of the children remained below the median in grade six.

2. There were 85 children above the median in grade one. 57 or 67% of the children remained above the median in grade six.

3. There were 115 or 78% of the children who did not change their position in relation to the median in grades one and six.

4. There were 19 children or 13% who remained in the same decile in both grade one and grade six.

5. There were 40 children or 30% who varied one decile place in grades one and six.

6. There were 59 children or 41% whose position varied less than two deciles in grades one and six.

7. There were 89 children or 63% whose position varied less than three deciles in grades one and six.

8. The average displacement was 2.5 deciles.

9. In the group with an I.Q. from 90 to 109:

   a. children below the median in grade one have one chance in seven of doing median work or above in grade six.

b. the children above the median have about a fifty-fifty chance of remaining there.

10. In the group with an I.Q. from 110 to 119:

a. The children below the median in grade one have one chance in eight of doing median work or better in grade six.

b. the children above the median in grade one have six out of ten chances of remaining there in grade six.

11. The children with an I.Q. of 120 and above:

a. the children below the median in grade one have six chances in ten of doing better than average work in grade six.

b. the children above the median in grade one have eight chances in ten of remaining there in grade six.

12. In the group with an I.Q. of 120 and above:

a. There were 43% of the children in the upper three deciles in grade six.

b. There were 70% of the children above the median in grade six.

c. There were 20% of the children below the median in grade six.

d. There were 8% of the children in the lower three deciles.

13. In the group with an I.Q. from 110 to 119:
    a. There were 22% of the children in the upper three deciles in grade six.
    b. There were 32% of the children above the median in grade six.
    c. There were 68% of the children below the median in grade six.
    d. There were 43% of the children in the lower three deciles in grade six.
14. In the group with an I.Q. from 90 to 109:
    a. There were 11% of the children in the upper three deciles in grade six.
    b. There were 30% of the children above the median in grade six.
    c. There were 70% of the children below the median in grade six.
    d. There were 50% of the children in the lower three deciles in grade six.

What does relative rank in reading achievement as shown by standard test scores at the end of grade one, predict as to reading placement in grade six?

1. Seventy-four percent of the children who were below the median in grade one remained there in grade six.

2. Sixty-seven percent of the children above the median in grade one remained above this point in grade six.
3. Seventy-eight percent of the children did not change their position in relation to the median in grades one and six.
4. Thirteen percent remained in the same decile in both grade one and six.
5. Thirty-six percent of the children varied but one decile position in grade one and grade six.
6. Sixty-three percent of the children varied less than three deciles in grade one and grade six.
7. The average displacement of all children in the study was 2.5 deciles.

Is the intelligence quotient a more reliable prediction for relative achievement?

1. In the group with an I.Q. of 120 and above:
   a. There were 70% of the children above the median in grade six.
   b. There were 43% of the children in the highest three deciles in grade six.
   c. There were 29% of the children below the median in grade six.
   d. There were 5% of the children in the lower three deciles in grade six.

2. In the group with an I.Q. from 110 to 119:
   a. There were 32% of the children above the median in grade six.
   b. There were 22% of the children in the upper three deciles in grade six.
   c. There were 68% of the children below the median in grade six.
   d. There were 43% of the children in the lower three deciles in grade six.
3. In the group with an I.Q. from 90 to 109:
   a. There were 30% of the children above the median in grade six.
   b. There were 11% of the children in the upper three deciles in grade six.
   c. There were 70% of the children below the median in grade six.
   d. There were 50% of the children in the lower three deciles in grade six.

Does the consideration of both first grade reading achievement as shown by standard tests, and the intelligence quotient increase the accuracy?

1. In the group with an I.Q. of 120 and above:
   a. The children below the median in grade one have six chances in ten of doing better than median work in grade six.

b. The children above the median in grade one have eight chances in ten of remaining above the median in grade six.

2. In the group with an I.Q. from 110 to 119:

a. The children below the median in grade one have one chance in eight of doing better than median work in grade six.

b. The children above the median in grade one have six chances in ten of remaining there in grade six.

3. In the group with an I.Q. of from 90 to 109:

a. The children below the median in grade one have one chance in seven of doing better than median work in grade six.

b. The children above the median in grade one have a fifty-fifty chance of remaining there in grade six.

Summary

In summary we may say that:

1. Relative rank of a pupil in reading in grade one under present methods of teaching is a general indication of the placement of that pupil in grade six. Four out of five children did not change their position in relation to the median. This factor alone is not exact enough to determine promotion however, for 37% did change their position more than three deciles.

2. The intelligence quotient has valuable contributions to make in prediction. Above the I.Q. of 120, 70% of the children were above the median in grade six regardless of first grade placement. Below 120 the I.Q. is progressively of less value as it approaches 90. For pupils with an I.Q. below 90 this study has little to offer as the number throughout the system was too small to be of any statistical significance especially as this group included several who under complete study demonstrated to be unstable and therefore even the validity of the I.Q. was questionable.

3. The combination of the intelligence quotient and reading achievement at the end of grade one is more reliable for prediction than either of the other two alone. The weighing of the factors should be varied according to the intelligence quotient level. A pupil with an I.Q. of 120 or above who is above the median in grade one is more likely to remain there in grade six. A pupil who is below the median in grade one has a fifty-fifty chance of doing work above the median level in grade six. In contrast to this group is the 90 to 109 intelligence group where a pupil above the median in grade one has a corresponding fifty-fifty chance of remaining there in grade six, while a pupil below the median in grade one is as sure of remaining in the lower half of the class in grade six as was the child with an I.Q.

of 120 or above of remaining above the median in grade six.

These same findings are born out with the middle group. (110-119). Where the reading placement is the most important factor less than 25% of the group changed their position in relation to the median in grades one and six. Considering that the median I.Q. falls in this group it is impossible to know whether this is due to the relative placement in the class or pure intelligence level. A similar study carried out in a town where the median I.Q. was 100 or below would be necessary to determine this distribution.

Suggestions for Further Study

In any study such as this there are always many areas in which further study is needed, such as further individual case studies of the children where variation was apparent. It would be interesting to know how this group differed from those following normal trends in:

1. The amount of absence from school.
2. Physical handicaps.
3. Sociological factors such as broken homes and economic strain present to a degree greater than in the other group.
4. Did the children who improved their status have special advantages such as tutoring or remedial reading.

5. What part do chance combinations of teachers such as a balance between formal and progressive types play in some cases.

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